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Ken et al.

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[54] MULTIPLE LAYERED VASO-OCCLUSIVE COILS

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[58] Field of Search 623/1, 12; 267/147-149, 267/167; 606/157, 108, 191, 194, 198, 200

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[57] ABSTRACT

This is an implantable vaso-occlusive device. It is a complex, helically wound coil having multiple secondary layers of primary windings. The final shape is often chunky in nature and may be used in the approximate shape of an anatomical cavity. It may be deployed in the approximate shape of a sphere, an ovoid, or other distorted spherical shape. The device is a self-forming shape made from a pre-formed linear vaso-occlusion member. Fibers may be introduced onto the device and affixed to the pre-formed linear member. The constituent member may be also be covered with a fibrous braid. The device is typically introduced through a catheter. The device is passed axially through the catheter sheath and assumes its form upon exiting the catheter without further action. The invention also includes methods of winding the anatomically shaped vaso-occlusive device into appropriately shaped forms and annealing them to form various devices.

26 Claims, 9 Drawing Sheets

